

AMENDMENTS TO THE CLAIMS

1. (currently amended) A method for continuously removing ~~the~~ unreacted butene-1[[,]] and optionally other volatile components[[,]] from a polymeric solution obtained by liquid phase (co)polymerization of butene-1, the method comprising the steps of:
  - a) subjecting the polymeric solution to heating and mixing conditions such that a mixture is formed consisting ~~substantially~~essentially of: (1) a polybutene melt containing entrapped butene-1 and (2) supercritical gaseous butene-1; and
  - b) subjecting the ~~above~~ mixture of step a) to a sequence of devolatilization steps operating at decreasing pressures and at temperatures comprised between 170 and 220°C.
2. (original) The method according to claim 1, wherein the other volatile components are comonomers, dimers, inert hydrocarbons, catalyst components and catalyst deactivators.
3. (original) The method according to claim 1, wherein the polymeric solution obtained by liquid phase (co)polymerization of butene-1 is a solution of polybutene-1 in butene-1 containing unreacted butene-1 in a percentage comprised between 65 and 90% by weight.
4. (original) The method according to claim 1, wherein the polymeric solution is fed to step a) at a temperature of 65-85°C.
5. (original) The method according to claim 1, wherein the polymeric solution is fed to step a) at a pressure of at least 22 bar.
6. (original) The method according to claim 5, wherein the polymeric solution is fed to step a) at a pressure in the range of from 25 to 80 bar.
7. (original) The method according to claim 1, wherein the heating and mixing conditions of step a) are obtained by flowing the solution of polybutene in butene-1 through a multi-tube heat exchanger having static mixing elements inserted inside each tube.
8. (original) The method according to claim 7, wherein said static mixing elements are mixing rods.
9. (currently amended) A method for continuously removing unreacted monomer[[,]] and optionally other volatile components[[,]] from a polymeric solution obtained by a liquid-phase (co)polymerization of butene-1, the method comprising the steps of:

- a<sub>1</sub>) subjecting the polymeric solution to heating and mixing conditions so as to cause part of the butene-1 to separate from the solution, thereby forming a product of step a<sub>1</sub>;
  - a<sub>2</sub>) subjecting the product ~~obtained from~~ of step a<sub>1</sub>) to a further heating such that a two-phase mixture is formed consisting ~~substantially~~ essentially of: (1) a polybutene melt containing entrapped butene-1 and (2) supercritical gaseous butene-1; and
  - b) subjecting the ~~above~~ two-phase mixture of step a<sub>2</sub> to a sequence of devolatilization steps operating at decreasing pressures and at temperatures comprised between 170 and 220°C.
10. (original) The method according to claim 9, wherein step a<sub>1</sub>) is carried out in a heat exchanger using a heating fluid at a temperature not higher than 146°C.
  11. (currently amended) The method according to ~~claims 9-10~~ claim 9, wherein the product of step a<sub>1</sub>) comprises ~~leads to the formation of~~ liquid and/or gaseous butene-1 and ~~of a~~ polymeric solution having a concentration of PB-1 in butene-1 comprised between 40 and 70% by weight.
  12. (currently amended) The method according to ~~claims 9-11~~ claim 9, wherein step a<sub>2</sub>) is carried out in a heat exchanger using a high-temperature diathermic oil as ~~the~~ a heating fluid.
  13. (currently amended) The method according to claim 1 ~~or 9~~, wherein the amount of butene-1 entrapped into the polybutene melt is less than 10% by ~~wt~~ weight.
  14. (currently amended) The method according to claim 1 ~~2~~ 13, wherein the amount of butene-1 entrapped into the polybutene melt is less than 6% by ~~wt~~ weight.
  15. (currently amended) The method according to claim 1 ~~or 9~~, wherein step b) comprises ~~two volatilizers~~ devolatilization in a first volatilizer and a second volatilizer connected in series, the first one volatilizer operating at a pressure higher than the atmospheric pressure, the second one volatilizer operating under vacuum.
  16. (original) The method according to claim 15, wherein the first volatilizer is operated at a temperature of from 170 to 220°C at a pressure of from 2 to 12 bar.
  17. (currently amended) The method according to ~~claims 15-16~~ claim 15, wherein at ~~the~~ an outlet of the first volatilizer the content of butene-1 in the polybutene melt is reduced ~~at~~ to less than 3% by weight.
  18. (currently amended) The method according to ~~claims 15-17~~ claim 15, wherein ~~the~~ a

- polybutene melt coming from the first volatilizer is introduced into atthe second volatilizer operated at a temperature of from 170 to 220°C at a pressure of from 5 to 100 mbar.
19. (currently amended) The method according to ~~claims 15-18~~claim 15, wherein at ~~the~~an outlet of the second volatilizer the content of butene-1 in the polybutene melt is reduced ~~at~~to less than 100 ppm.
  20. (currently amended) The method according to ~~claims 15-19~~claim 15, wherein the polybutene melt is compounded in a static mixer placed downstream after devolatilization in the last second volatilizer is used to carry out the compounding of the polymer melt.
  21. (currently amended) A process for obtaining butene-1 (co)polymers comprising the following steps:
    - ~~[[ - ]]~~a (co)polymerizing butene-1 in liquid phase in the presence of a catalyst system based on a transition metal compound to obtain a solution of polybutene-1 in butene-1;
    - ~~[[ - ]]~~b removing the an amount of unreacted butene-1, optionally together with other volatile components, from said solution ~~according to the method of claims 1-20 by~~
      - (I) subjecting the solution to heating and mixing conditions such that a mixture is formed consisting essentially of: (1) a polybutene melt containing entrapped butene-1 and (2) a supercritical gaseous butene-1;
      - (II) subjecting the mixture of step (I) to a sequence of devolatilization steps operating at decreasing pressurs and at temperatures comprised between 170 and 220°C .
  22. (new) The method according to claim 9, wherein the amount of butene-1 entrapped into the polybutene melt is less than 10% by weight.
  23. (new) The method according to claim 22, wherein the amount of butene-1 entrapped into the polybutene melt is less than 6% by weight.
  24. (new) The method according to claim 9, wherein step b) comprises devolatilization in a first volatilizer and a second volatilizer connected in series, the first volatilizer operating at a pressure higher than the atmospheric pressure, the second volatilizer operating under vacuum.
  25. (new) The method according to claim 24, wherein the first volatilizer is operated at a temperature of from 170 to 220°C at a pressure of from 2 to 12 bar.

26. (new) The method according to claim 24, wherein at an outlet of the first volatilizer the content of butene-1 in the polybutene melt is reduced to less than 3% by weight.
27. (new) The method according to claim 24, wherein a polybutene melt coming from the first volatilizer is introduced into the second volatilizer operated at a temperature of from 170 to 220°C at a pressure of from 5 to 100 mbar.
28. (new) The method according to claim 24, wherein at an outlet of the second volatilizer the content of butene-1 in the polybutene melt is reduced to less than 100 ppm.
29. (new) The method according to claim 24, wherein the polybutene melt is compounded in a static mixer after devolatilization in the second volatilizer.